

PROJECT ADMINISTRATION DATA SHEET

Project No. E-27-500 (05436-0A0) ☒ ORIGINAL ☐ REVISION NO. _____
Project Director: Dr. Boteler GTRI/ST XXX DATE 1 / 17 / 85
Sponsor: DHHS/PHS/CDC/NIOSH School XXX TE _____

Type Agreement: P.O. #85-34041
Award Period: From 12/27/84 To 7/31/85 (Performance) 7/31/85 (Reports)

Sponsor Amount: This Change Total to Date
Estimated: \$ _____ \$ 9,900
Funded: \$ _____ \$ 9,900

Cost Sharing Amount: \$ N/A Cost Sharing No: N/A

Title: Development of a Course in Occupational Safety and Health

ADMINISTRATIVE DATA

OCA Contact John Schonk x4820

1) Sponsor Technical Contact:

2) Sponsor Admin/Contractual Matters:

John Yacher
DHHS PHS CDC NIOSH
Robert A. Taft Labs
4676 Columbia Pkwy
Cincinnati, OHIO 45226

Jane Raber
National Institute for Occupational
Safety & Health
Box 36165
Cincinnati, OH 45236
513/684-8217

Defense Priority Rating: N/A Military Security Classification: N/A
(or) Company/Industrial Proprietary: N/A

RESTRICTIONS

See Attached _____ Supplemental Information Sheet for Additional Requirements.

Travel: Foreign travel must have prior approval – Contact OCA in each case. Domestic travel requires sponsor approval where total will exceed greater of \$500 or 125% of approved proposal budget category.

Equipment: Title vests with _____

COMMENTS:

Sponsor should be invoiced by Sub-Task. PI is requested to inform Grants
and Contracts Accounting when each sub-task has been completed and accepted.

COPIES TO:

Project Director
Research Administrative Network
Research Property Management
Accounting

Procurement/EES Supply Services
Research Security Services
Reports Coordinator (OCA)
Research Communications (2)

GTRI
Library
Project File
Other A. Jones



SPONSORED PROJECT TERMINATION/CLOSEOUT SHEETDate 7/22/85Project No. E-27-506School/Dept XXX TE

Includes Subproject No.(s) _____

Project Director(s) W. C. BotelerGTRC / XXXX
GISponsor DHHS/PHS/CDC/NIOSHTitle Development of a Course in Occupational Safety and HealthEffective Completion Date: 7/31/85 (Performance) 7/31/85 (Reports)

Grant/Contract Closeout Actions Remaining:

- ☐ None
- ☒ Final Invoice or Final Fiscal Report
- ☐ Closing Documents
- ☐ Final Report of Inventions
- ☐ Govt. Property Inventory & Related Certificate
- ☐ Classified Material Certificate
- ☐ Other _____

Continues Project No. N/AContinued by Project No. N/A

COPIES TO:

Project Director
Research Administrative Network
Research Property Management
Accounting
Procurement/GTRI Supply Services
Research Security Services
Reports Coordinator (OCA)
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Project File
Other A. Jones; M. Heyser

2-
SP347 188
Georgia Institute of Technology

A UNIT OF THE UNIVERSITY SYSTEM OF GEORGIA

ATLANTA, GEORGIA 30332

SCHOOL OF TEXTILE ENGINEERING

(404) 894-2490

June 21, 1985

DHHS PHS CDC NIOSH Robert A. Taft Labs
4676 Columbia Parkway
Cincinnati, Ohio
Attention: John Yacher

Reference: EFG/02.108.002 85.001
Sub Task I

With reference to Order No. 85-34041, I enclose 25 copies of the recruitment brochure. The promotional activities consisted of putting brochures into the hands of each departmental advisor on the campus and discussing with the advisors the details and advantages of the course. In addition, placards, of which a sample is enclosed, were posted on all departmental bulletin boards and on the schedule boards at the registration room. The timing of the project rendered some of these efforts ineffectual, since the project was initiated after the preregistration booklet with all the course listings had been published and after the students had preregistered for the spring quarter. The course was listed in the revised booklet which was published just before the regular quarter registration. Thus, only students who were changing their schedule by adding or dropping courses, roughly half the student population were, subject to the announcements. Most of the students who enrolled in the class did so as a result of placards they saw in the registration room, since none of them had gone to their departments for advisement.

Respectfully submitted,

✓ Winston C. Boteler
Professor of Textile
Engineering

wb/mkg
cc: OCA

A SPRING QUARTER TECHNICAL ELECTIVE

OCCUPATIONAL SAFETY AND HEALTH

IN ENGINEERING

TEXTILE ENGINEERING 4802A M TU TH 3

A SERIES OF LECTURES BY EXPERTS IN THE FIELD

SPONSORED BY THE NATIONAL INSTITUTE OF OCCUPATIONAL SAFETY AND HEALTH

NO PREREQUISITES

LIMIT 35 STUDENTS

COURSE COORDINATOR: PROF. BOTELER TEXTILE ENGINEERING 894-2490"

OCCUPATIONAL SAFETY AND HEALTH IN ENGINEERING

TEXTILE ENGINEERING 4802A
M, Tu, Th 3:00, 3-0-3

A COURSE DESIGNED FOR ENGINEERS, ARCHITECTS, MANAGERS AND OTHERS RESPONSIBLE FOR WORKER SAFETY AND SPONSORED BY NIOSH (NATIONAL INSTITUTE OF OCCUPATIONAL SAFETY AND HEALTH). THE LECTURES WILL BE GIVEN BY EXPERTS IN THE VARIOUS AREAS FROM GEORGIA TECH, NIOSH, AND INDUSTRY. EACH SESSION WILL CONSIST OF A 35 MINUTE LECTURE AND A 15 MINUTE QUESTION AND ANSWER PERIOD.

COURSE OUTLINE

GEORGIA INSTITUTE OF TECHNOLOGY
ATLANTA, GEORGIA
A SPRING QUARTER TECHNICAL ELECTIVE
OCCUPATIONAL SAFETY AND HEALTH IN ENGINEERING
TEXTILE ENGINEERING 4802A
M, Tu, Th 3:00, 3-0-3
No Prerequisites

A course designed for architects, engineers, managers, and others responsible for worker safety. Sponsored by NIOSH (National Institute of Occupational Safety and Health). The lectures will be given by experts in the various areas from Georgia Tech, NIOSH, and industry. Each session will consist of a 35-40 minute lecture with a 10-15 minute question and answer period. The course will examine the cause of industrial accidents and explore safety control methods.

NO.	DATE	DAY	TOPIC
1	4/2	TU	ENGINEERING PRACTICE AND THE PREVENTION OF DISEASE
2	4/4	TH	LAWS, REGULATIONS AND AGENCIES
3	4/8	M	ETHICS AND LIABILITY
4	4/9	TU	NOISE
5	4/11	TH	VIBRATION
6	4/15	M	HEAT STRESS
7	4/16	TU	IONIZING AND NON-IONIZING RADIATION
8	4/18	TH	CHEMICAL EXPOSURE AND INDUSTRIAL TOXICOLOGY I
9	4/22	M	CHEMICAL EXPOSURE AND INDUSTRIAL TOXICOLOGY II
10	4/23	TU	QUIZ
11	4/25	TH	EXPOSURE EVALUATION
12	4/29	M	INDUSTRIAL DISEASES
13	30	TU	LIGHTING AND ILLUMINATION
14	5/2	TH	CONTROL STRATEGIES
15	5/6	M	VENTILATION I
16	5/7	TU	VENTILATION II
17	5/9	TH	EMISSION CONTROLS
18	5/13	M	PERSONAL PROTECTIVE EQUIPMENT
19	5/14	TU	QUIZ
20	5/16	TH	MANAGEMENT OF HAZARDOUS CHEMICALS.
21	5/20	M	ELECTRICAL HAZARDS
22	5/21	TU	HIGH PRESSURE HAZARDS
23	5/23	TH	FIRE AND LIFE SAFETY
24	5/27	M	FACILITY LAYOUT AND MATERIALS HANDLING
25	5/28	TU	MAN - MACHINE INTERFACE
26	5/30	TH	PROPER USE OF THE HUMAN BODY IN STRENUOUS WORK
27	6/3	M	THE PSYCHOLOGY OF WORKING SAFELY
28	6/4	TU	THE COST OF HEALTH PROTECTION
29	6/6	TH	WHERE TO GO FOR HELP

Georgia Institute of Technology

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ATLANTA, GEORGIA 30332

SCHOOL OF TEXTILE ENGINEERING

(404) 894-2490

June 21, 1985

Mr. John Yacher
DHHS PHS CDC NIOSH Robert A. Taft Labs
4676 Columbia Parkway
Cincinnati, Ohio

Reference: P.O. #85-34041
Sub Task 2

Dear Mr. Yacher:

The course entitled "Occupational Safety and Health in Engineering," Textiles 4802A, a 3 credit hour course, was given during the spring quarter of 1985. The course was given in the television taping room of Continuing Education and all lectures were taped. Lectures were instructed to prepare a 35-40 minute presentation and to allow 10-15 minutes for questions at the end. Graphics were used by most lectures in the form of black on white diagrams. Several lecturers used the board the entire time, although most lecturers presented their material while seated at the desk. Three cameras were used during the presentation, showing lecturers, blackboard, or graphic as required. Split-screen techniques were used to show both lecturer and graphics simultaneously in some cases. The students were provided preprints of graphics and detailed tabular data.

Ten students registered for the course, out of a possible 35, although three dropped the course before drop date. The students who remained in the course were unanimous in their view that the course was very necessary for students going into the industrial world. There were two sophomores, two juniors, two seniors, and a graduate student. The graduate student was from mainland China. Copies of the student responses are included as addenda to this letter.

Respectfully submitted,

Winston C. Boteler
Professor of Textile
Engineering

WCB/mkg
Attachment

1. This course has made me aware of many hazards for the first time. I think that it much better to learn about hazards and safety practices now than when in the field when it may be too late. I'm not sure if an OSHA course should be required. It might be possible to stress safety and hazards more in courses that already exist such as "Machine Design" or "Materials Handling" type of courses.

2. From the practical point of view, situations that have any possible danger to them should be treated most carefully. Process and safety requirements should be strictly enforced at all times in order to reduce accidents. Many accidents can be avoided from the design point of view. The engineer should make this a high priority consideration in design work.

An OSHA course is a good idea for engineering curriculum however more benefit would be seen in industry, I feel, if a series of courses, encouraging further specialization (perhaps a certificate of some sort), were offered.

3. In this course I have realized that alot of engineering controls and considerations are not taken seriously or thought of just because they are usually taken for granted. I can see alot of specific things that I can apply to my job (eg. ventilation practices, electrical hazards, cryenomics, and psychology of working safely). It also gives an excellent overview of a wide variety of engineering professions. I do feel that it would be an excellent addition to the TECH curriculum for engineers. It's been a good course and it sure can be applied more than drownproffing. You and the guest lecturers gave good, concise and to the point lecturers without confusion.

4. To take this course, I think an engineer should consider safe facts when he designs machines, builds plant and arranges equipments. The engineers control of safe problems.

5. This course has made me even more safety aware. I work as a co-op and I see bad safety habits practiced by workers all the time(i.e. not wearing safety glasses and hearing protectors when they are needed). I think an OSHA course should be required in the engineering and the management curriculum. It is necessary for engineers and managers to know more about safety so they can pass it on to the people who work under them. In the company where I work the engineers are supposed to tell the technicians and others who work for them what protections they should wear and the nature of the substances they are working with.

6. An educated person (college grad.), however specialized, is expected to know more about more than the general public, including specialized tradesperson the engineer inherently must know of his work in relationship to the effects it may have on other areas, and visa-versa. Hazards, and the safety therefrom, often are unintentionally overlooked in the goal seeking of the endeavour, so a consciousness of such is very important - ultimately in the overall concept, the engineer may be the only one that understood the hazards involved.

Due to the responsibility attained due to the vantage point of the engineer, he must be required to have an adequate understanding of such from the combined historical expenses, of others, i.e. to be taught such in a required class.

7. I learned a great deal about safety but most important, I've seen how much I don't know. This is important because I want to be a responsible engineer. I feel most engineers are even aware of their short-comings in the area of safety. If this is what you call an OSHA course then I'm 100% in favor of a mandatory program (not just a course) in this area. Probably hundreds of thousands of deaths in the future could be prevented if Georgia Tech engineers were better informed on the basics of safety and knew where to find the tools for further improvement.

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June 21, 1985

Mr. John Yacher
DHHS PHS CDC NIOSH Robert A. Taft Labs
4676 Columbia Parkway
Cincinnati, Ohio

Reference: P.O. #85-34041, Task 3

Dear Mr. Yacher:

The course on Occupational Safety and Health in Engineering has been completed and all of the lectures were taped except one. Two quizzes and a final examination were given in order to grade the students. The small number of students in the course was understandable, since the project was not initiated until after preregistration for the spring quarter had been completed. However, the students who took the course were awed by the range of safety problems encountered in industry. All but one agreed that an occupational safety and health course should be a required course in the Georgia Tech curriculum. One student argued that safety information could be included in the regular engineering courses as a way to impress on the student the importance of safety in a specialized area. Most of the students felt that the subject matter looked somewhat intimidating as presented in the course outline section of the brochure. All of the students indicated in individual questioning that they would have taken the course without any hesitation if it had been presented as a pass-fail course. All the students in the course were engineers of various disciplines, and they expressed the opinion that the technical content indicated in the outline may have frightened away the management students and some engineering students.

A longer lead time, such as two quarters, would help in building attendance in the class if it is presented again. Since each lecture is on a different topic, it is recommended that the course be presented as a self-taught course with milestone examinations to be given by a faculty coordinator. The long lead time has one disadvantage, however. Because of the time which elapsed between the time that the guest lecturers agreed to prepare and present the lectures and the time that the lectures were actually given, many lecturers had made other commitments which made it impossible for them to appear, even when offered alternate lecture spots. In those cases, I either got the material from the person and worked up the lecture myself, or I worked up the lecture from scratch. This system produced some lectures which are undoubtedly less professional than they would have been if they had been presented by the original experts. This made the course somewhat difficult for me since it meant that in addition to teaching three other courses I spent a lot of time preparing lectures, handouts, and graphics for this course. We were not able to hire a graduate assistant to help. The contents of all the topics presented in the course outline were given, somewhat out of

order, with the exception of a lecture on airborne contaminants by Jerry May of OSHA. That lecture was deleted because Mr. May was stricken with a severe back problem only one day before the day of the lecture and there was not enough time to prepare the lecture or a substitute lecture. The students were asked to give their opinions of the course on the final examination by answering the following two questions:

1. How has this course affected your outlook on safety in the workplace as an engineer?
2. Should an OSHA course be required in the engineering curriculum?

The answers to these questions are enclosed in their original form along with a typed transcript.

There was a great deal of enthusiasm among the students during the quarter for the new knowledge to which they were exposed, particularly those topics pertaining to the body.

The lecturers were queried individually, and to a man complained that there was not enough time to explain the phenomena, discuss the hazards, and outline the control or preventive measures. I believe that the course will have to remain as highly concentrated as it is, since it would not be accepted as a 5 hour course. The students complained about highly technical lectures at which the hand-outs were inadequate. They can't look at the visuals and listen to the discussion if they are busy copying in their notebooks.

I recommend that if the course is given again, the students be provided with the full text of the lecture and all of the graphical material prior to the lecture. I believe that if the students can be lured into the classroom, they will be excited to hear all the ramifications of industrial safety of which they now know very little.

Respectfully Submitted,

✓ Winston C. Boteler
Professor of Textile
Engineering